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A NEW SPECIES OF *BURSA* FROM DEEP WATER OFF THE PHILIPPINE ISLANDS

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SUMMARY

Bursa (Bufonariella) rehderi n. sp. is described from deep water around the Philippine Islands. Watson's (1886) Philippines specimen identified as *Ranella fijiensis* is probably a specimen of *B. rehderi;* both it and the holotype of *R. fijiensis* are figured.

INTRODUCTION

Among several rare gastropods of the family Bursidae lent to the writer by the United States National Museum are several lots of an unusual thin-shelled species of *Bursa* collected at 20 stations around the Philippine Islands, in 210 to 640 m, by the United States Bureau of Fisheries Steamer "Albatross" The opportunity is taken to name the new species in honour of Dr Harald Rehder, Zoologist Emeritus, United States National Museum, in the year of his retirement from a long career of valuable contributions to molluscan taxonomy.

TAXONOMY

Class Gastropoda

Family Bursidae

Genus *Bursa* Roding, 1798

1798. *Bursa* Roding, Museum Boltenianum (2): 128. Type species (by subsequent designation, Oyama, 1964): *Bursa monitata* Röding, 1798 (= *Murex bufonius* Gmelin 1791), Recent, Indo-West Pacific.

1899. *Pseudobursa* Rovereto, Atti Soc. Ligust. Sci. Nat. Geog., 10:6. Unnecessary replacement for *Bursa* Röding, 1798.

The first type designation for *Bursa* to select a species expressly included by Röding (1798: 128) is that by Oyama (1964: 33) who cited: "Type-species (s.d., Jousseaume, 1881): *Murex bufonius* Gmelin [in *Bursa monitata* Röding]", and thereby designated *Bursa monitata* Röding as type species of *Bursa* (International Code of Zoological Nomenclature, Article 69 (a) iv).

Subgenus *Bufonariella* Thiele, 1929.

1929. *Bufonariella* Thiele, Handbuch der Systematischen Weichtierkunde, 1 (1): 284. Type species (by monotypy): *Murex scrobilator* Linnaeus, 1758, Pliocene to Recent, Mediterranean.

Bufonariella is here used as a subgenus of *Bursa* distinguished by its thinner and more finely sculptured shell, its shorter posterior apertural canal, its lower and narrower varices, and its taller spire than those of *Bursa (sensu stricto)*. The operculum has its nucleus at the abaxial edge of the anterior end and the varices of most species are aligned up the sides of the spire, at least on early whorls, and these features show that *Bufonariella* is closely related to *Bursa*.

Bursa (Bufonariella) rehderi n. sp.

Figs. 1-8

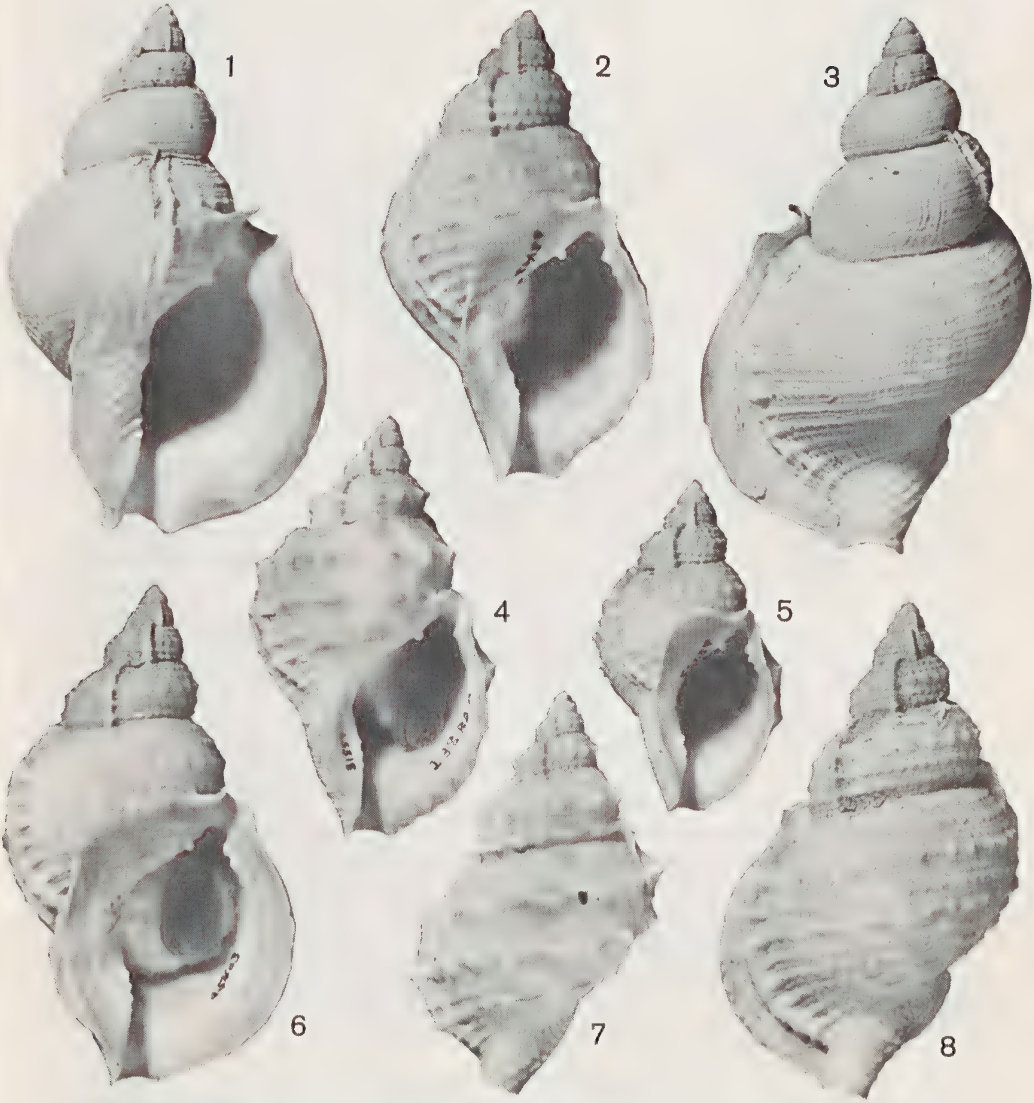
Shell of moderate size, wide for the subgenus, light and thin, finely sculptured, with strongly rounded whorls and a large aperture. Varices small, thin and relatively high, aligned up spire sides (or nearly so) on first three or four whorls but becoming progressively more widely spaced over last one to two whorls so that they are spaced as in *Tutufa* and Cymatiidae over the last whorl of large shells; weakly hollowed, and thus weakly buttressed by spiral cords, on abapertural edge; succeeded on adapertural edge by thin, high, flared, former outer lips that become progressively more expanded down the shell. Sculpture of initial few teleoconch whorls consists of four or five spiral rows of small, slightly pointed, closely spaced nodules, 10 to 15 in each intervariceal space in each row; nodules of peripheral row slightly larger than others. On some specimens, nodules remain of similar size to those of initial whorls down entire shell; on other specimens nodules increase in size progressively down the shell, so last whorl bears only three rows of five or six large, pointed, anteroposteriorly compressed nodules in each intervariceal space; and on other specimens, nodules decrease in size progressively down the shell so last few whorls are almost smooth, bearing scarcely raised, narrow, spiral cords only. Specimens with prominent nodular sculpture on last few whrols bear nodules on varices where they are crossed by spiral cords, whereas varices of weakly sculptured specimens have a smoothly curved outline. Entire shell surface crossed by regular, low, fine, closely spaced, spiral lirae, crossed by even finer and more closely spaced incremental lirae. Aperture unusually large for *Bufonariella*, with short, widely open anterior and posterior siphonal canals; inner and outer lips both almost smooth, expanded into thin, flared flanges covering parietal area, columella and varix, degree of expansion increasing markedly with shell size so lips are most widely flared in largest specimens; one small, narrow parietal ridge and three or four low, narrow columellar ridges on inner lip; many weak, low folds around internal edge of outermost flare of outer lip in small specimens, reduced to one or two weak folds at top and bottom of otherwise smooth lip on most large shells (about 16 weak folds on holotype are arranged in irregular pairs). Aperture white; exterior cream to pale reddish brown, pattern arranged in faint axial flames on some specimens, and as slightly darker reddish brown streaks on spiral cords between white nodules on many specimens; largest specimen black and fawnish grey (presumably stained). Protoconch typical of Bursidae, relatively large, equidimensional-turbinate, of three rounded whorls; surface details eroded from all available specimens. Operculum thin, medium brown, subrectangular, with nucleus at anterior abaxial corner.

Dimensions: height 70.3 mm, diameter 40.2 mm (holotype); height 73.5 mm, diameter 44.0 mm (largest paratype, USNM 205474); height 65.0 mm, diameter 36.4 mm (paratype, USNM 240450); height 59.2 mm, diameter 34.1 mm (widest paratype, coarse sculpture, USNM 238820); height 45.0 mm, diameter 26.0 mm (smallest paratype, USNM 240450).

Holotype (USNM 240450), 6 paratypes (lots 238820, 230654, 240450, 205474) and 16 other lots of specimens in United States National Museum; one paratype (WM 12070) presented to New Zealand Geological Survey.

Localities: Holotype and three paratypes, U.S. Bureau of Fisheries (USBF) Station 5403, 333 m (182fm), on green mud, off Abgao, Leyte, Philippine Islands (USNM 240450, WM 12070). Other paratypes: USBF Sta. 5518, 365 m (200 fm), off Pt. Tagolo, Mindanao, Philippines (three, USNM 238820); USBF Sta. 5191, 490 m (268 fm), Tañon Strait, Philippines (one, USNM 230654); USBF Sta. 5188, 9° 44′N, 123° 14′ 20″E, Tañon Strait due west of Alegraia, Cebu I., and midway between coasts of Cebu and Negros Islands, Philippines, 547 m (299 fm) (largest paratype, USNM 205474).

Other specimens, not seen (not designated paratypes): USBF Sta. 5508, off Iligan, Mindanao, Philippines, 494 m (270 fm) (one, USNM 238695); USBF Sta. 5506, off Tacnipa, Mindanao, Philippines, 479 m (262 fm) (one, USNM 238679; USBF Sta. 5403, off Capitancillo I., N. Cebu, Philippines, 333 m (182 fm) (three, USNM 287820); USBF Sta. 5 216, off Claveria, Burias, Philippines, 393 m (215 fm) (one, USNM 280554); USBF Sta. 5118, Balayan Bay, Luzon, Philippines, 353 m (193 fm) (one, USNM 235381); USBF Sta. 5280, off Malvatuan I., W. Luzon, Philippines, 353 m (193 fm) (one, USNM 237548); USBF Sta. 5189, Tañon Strait, Philippines, 549 m (300 fm) (four, USNM 229275); USBF Sta. 5398, off Gigantangan I., N.W. Leyte, Philippines, 208 m



FIGURES 1-8. *Bursa (Bufonariella) rehderi* n. sp., Philippine Islands; all specimens in U.S. National Museum (all natural size).

1, 3. largest paratype, U.S. Bureau of Fisheries (USBF) Sta. 5188, Tañon Strait due west of Alegraia, Cebu I., 547 m (USNM 205474), whitened with ammonium chloride.

2, 5. paratypes, USBF Sta. 5403, off Abgao, Leyte, 333 m (USNM 240450).

4, 7. paratypes with prominent sculpture, USBF Sta. 5518, off Pt Tagolo, Mindanao, 365 m (USNM 238820).

6, 8. holotype, USBF Sta. 5403, off Abgao, Leyte, 333 m (USNM 240450).

(114 fm) (two, USNM 287613); USBF Sta. 5404, S of Dupon Bay, Leyte, Philippines, 347 m (190 fm) (two, USNM 229370); USBF Sta. 5407, off Dupon Bay, Leyte, Philippines, 640 m (350 fm) (two, USNM 238269); USBF Sta. 5519, off Pt Tagelo, N. Mindanao, Philippines, 333 m (182 fm) (four, USNM 238840); USBF Sta. 5402, off Villalia, Leyte, Philippines, 344 m (188 fm) (21, USNM 238242); USBF Sta. 5535, SE of Pt. Tañon, Cebu, Philippines, 567 m (310 fm) (two, USNM 238896); USBF Sta. 5409, W. of Pacijan I., W. of Cebu, Philippines, 346 m (189 fm) (one, USNM 238292); USBF Sta. 5405, off Dupon Bay, Leyte, Philippines, 479 m (262 fm) (12, USNM 238256); USBF Sta. 5406, off Ponson I., Camotes Islands, Philippines, 545 m (298 fm) (six, USNM 288045).

Bursa (Bufonariella) rehderi differs strongly from all previously named species of the subgenus in its relatively wide shape, its strongly inflated whorls, its thin shell, its large aperture, and its prominently flared inner and outer apertural lips. The large range of variation in shape, apertural features, and size of sculptural nodules in a small geographic area is seen also in other, more typical species of *Bursa (Bufonariella)* such as the Mediterranean *B. scrobilator* (Linnaeus), the widespread Indo-West Pacific and Caribbean *B. granularis* (Röding), and especially the Panamic *B. caelata* (Broderip). The spire is taller and the shell is thinner and more finely sculptured in *B. rehderi* than in species of *Bursa* (sensu stricto), and these features leave little doubt that it belongs in *Bursa (Bufonariella)*, but examination of the radula will be necessary to confirm its position.

The relatively low spire and wide, slightly dorsoventrally compressed shape of *Bursa (Bufonariella) rehderi* lend it a superficial resemblance to species of *Bufonaria* Schumacher, the genus of Bursidae most commonly encountered on tropical continental shelves and in deeper water. However, the operculum of *Bufonaria* has its nucleus in the centre of the adaxial margin, so resembling operculae of *Phalium* and related Cassidae, and clearly differing from the abapical opercular nucleus of *B. rehderi* and other species of *Bursa* (sensu lato). Also *B. rehderi* lacks the strictly aligned, laterally expanded varices and more strongly dorsoventrally compressed shell of species of *Bufonaria.*

When he described *Ranella fijiensis,* Watson (1881: 270) included only one specimen, from "Challenger" sta. 173, lat. 19°9'35"S, long, 170°41'50"E, off Fiji, in 315 fm (576 m), on coral mud (in British Museum (Natural History), No. 1887.2.9.1217). Later (Watson 1886: 397) he included a second specimen, from "Challenger" sta. 204A, lat. 12°43'N, long. 122°9'E, off the Philippine Islands, 100 to 115 fm (183-210 m), on green mud (in British Museum (Natural History), No. 1887.2.9.1218).

The holotype of *Ranella fijiensis* (Fig. 10) was compared by Watson with both *Bufonaria nobilis* (Reeve) and *Bursa (Bufonariella) affinis* (Broderip) (= *B. granularis* Röding) but is clearly a species of *Bursa (Bufonariella)* related to *B. granularis.* It resembles *B. granularis* and differs from *B. rehderi* n. sp. in its finely granulose surface sculpture and relatively wide, prominent varices that are aligned up the spire sides, and differs from *B. granularis* in its shorter spire, more angled whorls, and even wider varices. However, the Philippines specimen identified by Watson as *Ranella fijiensis* (Fig. 9, 11) is not conspecific with the holotype, and its long columella, widely reflected inner lip callus, almost smooth surface between relatively large widely spaced nodules, and relatively widely separated varices (ca. 200° apart) strongly suggest that it is a broken, worn, encrusted specimen of *Bursa (Bufonariella) rehderi* n. sp. The specimen is 75.1 mm high (slightly larger than the largest paratype of *B. rehderi),* whereas the holotype of *B. fijiensis* is 53.6 mm high and 35.0 in diameter. If correctly assigned to *B. rehderi,* this is the only specimen known to the writer in collections other than the U.S. National Museum and the New Zealand Geological Survey.

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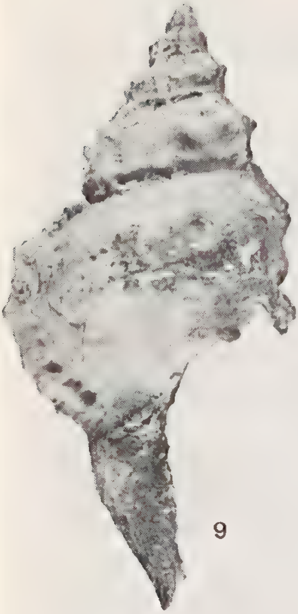

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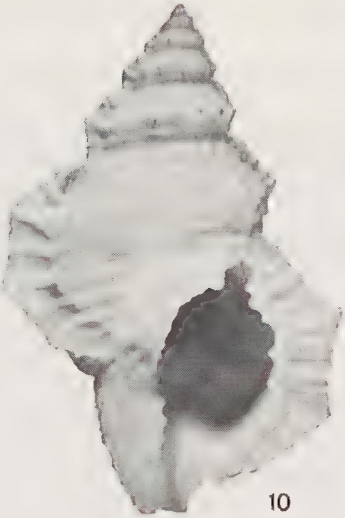

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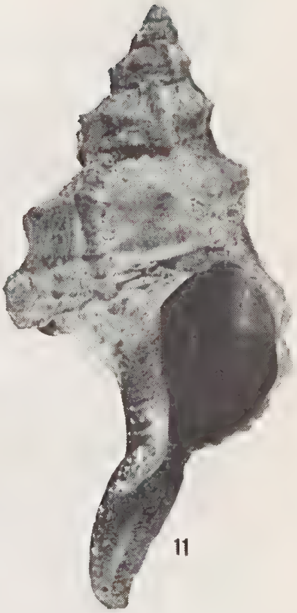

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FIGURES 9-11.

9, 11. *Bursa (Bufonariella) rehderi* n. sp., specimen identified by Watson (1886) as *Ranella fijiensis* Watson, 1881; "Challenger" sta. 204A, off Philippine Islands, 100-115 fm (183-210 m); British Museum (Natural History) No. 1887.2.9.1218; enlarged X 1.1.

10. *Bursa (Bufonariella) fijiensis* (Watson, 1881), holotype of *Ranella fijiensis* Watson, "Challenger" sta. 173, off Fiji, 315 fm (576 m); British Museum (Natural History) No. 1887.2.9.1217; enlarged X 1.4.

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